a sleeve assembly, sized to cover said endoscope section and extending along an axis, and having an optical element which includes a mirror which forms a fixed angle relative to an axis of said sleeve assembly and further comprising an additional sleeve assembly with an additional mirror that forms a different fixed angle relative to the axis of said sleeve assembly which changes a direction of light coming from an outside said sleeve assembly, and directs light to said image receiving portion of said endoscope section from the area outside said sleeve assembly.

a1

8. (Amended) A system as in claim 1, further comprising a plurality of additional sleeve assemblies, each having a different mirror angle, forming a set.

a2

9. A system as in claim 1, further comprising a rotatable connection between said sleeve assembly and said endoscope section, wherein said sleeve assembly can be rotated relative to said endoscope section to adjust an orientation of an image being acquired.

10. A system as in claim 9, further comprising an orientation part, which is viewable from an outside of said

sleeve assembly, and which indicates an orientation of rotation of said sleeve assembly.

11. A system as in claim 9, wherein said rotatable connection includes an O-ring.

12. A system as in claim 1, wherein an outer surface of said endoscope section is smaller than an inner surface of said sleeve assembly, defining a cavity between said endoscope section and said sleeve assembly.

A3

13. (Amended) A system as in claim 12, further comprising spacing elements, located in said cavity, and holding said endoscope section at a specified orientation within said cavity.

14. A system as in claim 12, further comprising a connection to said cavity.

15. The system as in claim 14, further comprising a fluid source, connected to supply fluid to said cavity through said connection.

16. A system as in claim 12, wherein an outlet of said cavity opens near said optical element.

17. A system as in claim 15, wherein an outlet of said cavity opens near said optical element, and is located such that fluid supplied to said cavity is also supplied to said optical element.

18. A system as in claim 1, further comprising a video element, operating based on video from said endoscope section.

19. A system as in claim 18, wherein said optical element includes a mirror, and said video element electronically mirror-inverts at least a portion of an image obtained from said endoscope section.

20. A system as in claim 18, further comprising an extension cable, coupled at one end to said endoscope section and at another end to said video element.

21. A system as in claim 18, further comprising an illumination part, coupled to provide illumination to an area of imaging.

22. A system as in claim 18, wherein said video element also includes an image processing system which selectively rotates said image.

23. A system as in claim 18, wherein said video element also includes a dual display part, which simultaneously allows displaying multiple images.

24. The system as in claim 23, wherein said multiple images are images obtained at different times.

25. The system as in claim 23, wherein said multiple images are images obtained simultaneously.

26. A system as in claim 23, further comprising a text generator, which produces a textual display indicative of parameters being sensed.

27. A system as in claim 1, wherein said endoscope section is formed of an optical waveguide.

28. A system as in claim 1, wherein said endoscope section is formed of an electrical cable, and a camera receiving optical information near said image receiving portion of said endoscope.

29. A system as in claim 27, wherein said optical waveguide includes an optical fiber.

30. A system as in claim 1, wherein said endoscope section has a substantially rounded end.

a4

31. (Amended) A system as in claim 1, wherein said endoscope section has a substantially flat [and] end.

32. A system as in claim 20, wherein said endoscope section is formed of an optical waveguide.

33. A system as in claim 32, further comprising a connector part, connecting between said endoscope section and said extension cable.

34. A system as in claim 33, wherein said connector part has inner surfaces which align said endoscope section with said extension cable.

35. A system as in claim 34, wherein said sheath has an expanded area in the vicinity of said connector part, with inner surfaces which are sized to accept said connector part.

36. A system as in claim 35, wherein said sheath is rotatable relative to said connector part.

37. A system as in claim 1, further comprising a first window portion defined in said sleeve assembly.

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38. (Amended) A system as in claim 37, wherein said sleeve assembly is formed of an optically non-clear material, and said window is formed to allow light to pass through said window portion in said sleeve assembly.

39. A system as in claim 37, wherein said optical element is configured to reflect light to substantially an entire part of said endoscope section.

40. A system as in claim 37, wherein said optical element is configured to reflect light to only a portion of said endoscope section.

41. A system as in claim 40, further comprising a second window portion, formed in a different area then said first window portion.

42. A system as in claim 41, wherein incoming light from said first window portion is coupled to said optical element, and incoming light from said second window portion is not coupled to said optical element.

43. A system as in claim 42, wherein said optical element includes a mirror, and said second window portion is formed in an area which is axially adjacent said endoscope section, and incoming light from said second window portion is coupled directly to said second window section without being reflected by said mirror.

44. A system as in claim 42, further comprising displaying images from both said first window portion and said second window portion.

45. A system as in claim 42, wherein said optical element includes a mirror, and further comprising an image processor

that mirror-inverts said images from said first window portion, but does not mirror-invert said images from said second window portion.

46. A system as in claim 45, further comprising displaying simultaneously the images from the first window portion and from said second window portion.

47. A system as in claim 1, further comprising a surgical tool, coupled to said sheath.

48. A system as in claim 47, wherein said tool includes a forceps.

49. A system as in claim 1, further comprising an illumination element, providing illumination to an area being imaged.

50. A system as in claim 49, wherein said illumination element comprises an optical waveguide.

51. The system as in claim 49, wherein said sheath is formed of optically transparent material with reflective

coatings, and said illumination is coupled to said optically transparent material.

52. A system as in claim 51, further comprising an opening in the reflective coatings in an area of the area being imaged.

53. A system as in claim 52, wherein said opening is an annular opening.

55. (Amended) An assembly, comprising:

an endoscope part, having a first portion adapted to receive optical energy, and a second portion adapted to supply information indicative of the optical energy;

A6

a first sheath, extending generally along an axis, and having an inner surface which is sized to be larger than an outer surface of said endoscope part, and located around said endoscope part, said sheath having an optical window located in a location which forms a predetermined fixed non-zero degree angle with said axis, and having an optical portion located to change a direction of incoming optical energy from said optical window to the direction of said axis; and

an assembly wherein said optical element is a mirror that forms a first fixed angle relative to said axis, to thereby reflect optical energy from a specified viewing area to said optical axis, further comprising at least one additional sheath, having a mirror which forms a fixed angle which is different then said first fixed angle, and which can be used with said endoscope part.

61. An assembly as in claim 55, further comprising a cavity formed in said sheath, said cavity receiving irrigation fluid.

62. An assembly as in claim 61, wherein said cavity includes an opening near said optical element, such that said irrigation fluid washes across a surface of said optical element.

63. An assembly as in claim 55, wherein said endoscope part includes an optical waveguide.

64. An assembly as in claim 55, wherein said endoscope part includes a camera, and an electrical wire receiving electrical signals from said camera.

65. An assembly as in claim 55, further comprising a video section, receiving said information indicative of the optical energy.

66. An assembly as in claim 65, wherein said video section includes an image processor which processes information indicative of the optical energy as an image.

67. An assembly as in claim 66, wherein said optical element is an element that inverts an image, and said image processor includes an image inversion element which inverts said image.

68. An assembly as in claim 55, wherein said optical element couples said incoming optical energy to only a portion of said endoscope part.

69. An assembly as in claim 68, wherein another portion of said endoscope part receives incoming optical energy indicative of another view.

A7

70. (Amended) An assembly as in claim 55, further comprising means for illuminating an area of viewing.

71. An assembly as in claim 70, wherein said sheath is formed of optically transparent materials, and said illuminating comprises illuminating said area via said optically transparent materials.

A8

72. (Amended) A method, comprising:

obtaining an optical image using an endoscope; and

mirror inverting at least a portion of said image, further comprising varying an angle from which said optical image is obtained wherein said varying comprises using a different mirror in a different fixed location to obtain said optical image from a different angle.

76. A method as in claim 72, wherein said mirror inverting comprises inverting an entire optical image.

77. A method as in claim 72, further comprising obtaining another optical image using the endoscope, and wherein said mirror inverting comprises inverting only said optical image, and not said another optical image.

78. A method as in claim 72, wherein said obtaining comprises obtaining optical energy indicative of an image, and using an optical waveguide to couple said optical image.

79. A method as in claim 72, wherein said obtaining comprises using a camera in said endoscope to obtain electrical energy indicative of an image, and using an electrical line to couple said electrical energy indicative of said image.

80. A method as in claim 72, wherein said obtaining comprises obtaining a view from an angle relative to an axis of said endoscope, and using a mirror to reflect said view in a direction of said axis.

81. A method as in claim 80, wherein said mirror reflects said image in a way that covers an entire active area of said endoscope.

82. A method as in claim 80, wherein said mirror reflects said image in a way that covers only a part of an entire active area of said endoscope.

83. A method as in claim 82, further comprising obtaining another image using the active area of said endoscope other than said part of said active area.

84. A method as in claim 83 wherein said endoscope includes an optical fiber, and said mirror reflects said image to only a portion of said optical fiber.

85. A method as in claim 72, further comprising providing illumination for a view obtained by said endoscope.

86. A method as in claim 72, further comprising allowing rotation of an area of imaging.

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100. (Amended) A method, comprising:

using an endoscope to obtain an optical image from a body cavity of a patient; and

varying an angle from which said optical image is obtained wherein said varying comprises using a different mirror in a different fixed location to obtain said optical image from a different angle.

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101. A method as in claim 99, further comprising varying an angle relative to an axis of said endoscope, from which said optical image is obtained.

105. A method as in claim 100, wherein said optical image is obtained in the form of optical energy, and is guided on a light waveguide in said endoscope.

106. A method as in claim 105, wherein said light waveguide is a fiber-optic cable.

107. A method as in claim 100, wherein said optical image is obtained in the form of electrical energy, and is guided on an electrical cable in said endoscope.

108. A method, comprising:

first obtaining a first image from a first position in a body cavity; and

second obtaining, using the same device as used to obtain said first image, and simultaneously in time to receiving said first image, a second image from a second position in the same body cavity.

109. A method as in claim 108, further comprising image processing said first image and said second image.

110. A method as in claim 109, wherein said image processing comprises image processing said first image in a different way than image processing in said second image.

111. A method as in claim 110, wherein said image processing in said first image includes mirror-inverting said first image, and said image processing in said second image does not include mirror-inverting said second image.

112. A method as in claim 108, wherein said first and second obtaining comprises obtaining an image from the first position and applying the image from the first position to a first portion of an image acquisition element, and said second obtaining comprises obtaining the image from the second position, and applying this image from the second position to a second portion of the image acquisition element, different than the first portion of the image acquisition element.

113. A method as in claim 112, where the image acquisition element includes a light waveguide.

114. A method as in claim 112, where the image acquisition element includes an electronic camera.

121. An endoscope, comprising:

a scope portion, having a first window adapted to acquire an image of a first viewing area from a first direction, and a second window adapted to acquire an image of a second viewing area from a second direction, different than said first direction; and

an image element, simultaneously acquiring said images from said first and second viewing areas.

122. An endoscope as in claim 121, wherein said image element includes an optical waveguide.

123. An endoscope as in claim 121, wherein said image element includes an electrical camera.

124. An endoscope as in claim 121, further comprising a direction changing element which changes an angle of said image from said first direction.

125. An endoscope as in claim 124, wherein said direction changing element includes a movable element which changes a direction of a light path.

126. An endoscope as in claim 124, wherein said direction changing element includes a hinged portion coupled to said scope portion.

127. An endoscope as in claim 124, wherein said scope portion includes a mirror at a fixed angle, and said direction changing element includes a separate portion of said scope portion which includes a mirror at a different fixed angle.

128. An endoscope as in claim 121, further comprising an image processor, which image processes said image of said first viewing area in a different way than image processing of said image of said second viewing area.

129. An endoscope as in claim 128, wherein said different way comprises inverting said image of said first viewing area.

Q10

130. (Amended) An apparatus comprising:

an endoscope portion including an optical coupling element and a sheath covering said optical coupling element; and

an image processing element, receiving an image from said optical coupling element, and processing said image to invert at least a portion of said image.

131. An apparatus as in claim 130, wherein said image processing element also selectively rotates said image.

132. An apparatus as in claim 130, wherein said image processing element also adds text to said image, said text indicative of conditions of imaging.

133. An apparatus as in claim 130, wherein said sheath includes an optical element which changes an angle of incidence of incoming light.

134. A method, comprising:

using an optical endoscope with a sheath to obtain an image from a specified nonzero angle of incidence relative to said endoscope; and

changing a sheath to use a different another sheath that images from a different angle of incidence, and then using said

optical endoscope to obtain a second image from a second specified nonzero angle of incidence.

all

135. (Amended) A method as in claim [135] 134, further comprising illuminating said image using a same optical path as is used for said imaging, to illuminate said image at any angle of incidence being currently used.

136. An endoscope, comprising:

an optical receiving element, and

an optical endoscope system obtaining an image of a specified area, and coupling said image to only a portion of said optical receiving element, a rest of said optical receiving element being used for a purpose other than obtaining said image of said specified area.

137. An endoscope as in claim 136, wherein said purpose is for obtaining another image, different than said image of said specified area.